A NEW GENUS AND SOME NEW SPECIES OF THE CHAULIODINI (MEGALOPTERA), WITH NOTES ON CERTAIN PREVIOUSLY DESCRIBED SPECIES

By D. E. KIMMINS

SYNOPSIS

The greater part of this paper is devoted to descriptions of eleven new species or subspecies and a new genus from Oriental, Australian and Chilean localities. The types of some species described by Walker, McLachlan and Weele have been re-examined, and new figures of genitalia prepared, and an artificial key for the identification of the genera of the Chauliodini is given.

THE tribe Chauliodini may be distinguished by the following diagnosis: Antennae moniliform, serrate or pectinate in the male, moniliform, subserrate or, more rarely, pectinate in the female. Normally not more than three cross-veins between the radius and its sector. In the hind wing the basal *r–m* cross-vein is present, obsolescent or entirely absent. Cu_1 with only one branch beyond the inter-cubital cross-vein.

Male genitalia with only one pair of appendages. Ninth tergite moderately sclerotized, somewhat hood-shaped. Sternite generally less sclerotized than tergite, forming a variously shaped subgenital plate, whose apical margin is often produced in a transparent triangular lobe. Tenth tergite forming a pair of anal plates or claspers, differing in shape in the various species and variously armed on the inner surface with black spinules or comb-like teeth. There is a group of trichobothria forming a more or less convex wart on the outer surface. Tenth sternite generally membranous although occasionally (*Ctenochauliodes*) it forms a sclerotized plate. Aedeagus hinged to the lower basal angle of the ninth tergite, trough- or scoop-like, simple or bifid at its apex.

♀ GENITALIA. Eighth sternite more or less sclerotized, sometimes produced apically as a subgenital plate. Ninth tergite deep, its lateral margins produced downwards almost across the segment; to their lower angles are attached a pair of foliate lateral gonapophyses. Ninth sternite apparently membranous. Tenth segment forming a pair of cercoid anal plates, of varying form, each with a group of trichobothria.

The known distribution of the tribe is somewhat discontinuous, although further collecting and study may cause us to modify our conclusions. There appears to be a small Antarctic element consisting of two genera, with representatives in Australia, New Zealand and Chile, one of the genera also possibly extending northward into California. There are two genera occurring in South Africa, one of which is

fairly closely related to *Protochauliodes* from Australia and Chile and the other has a near relative in Madagascar.

The Nearctic region contains at least four genera in addition to possible representatives of the Antarctic genus referred to above. The Oriental region appears to be richest in described species and subspecies and contains four genera, of which three spread northward into the Manchurian-Japanese sub-region of the Palaearctic fauna. The majority of the species occur in the Indo-Chinese sub-region.

Certain genera exhibit sexual dimorphism in the antennae and while such characters will serve to separate the males generically, it has not been easy to find venational characters which will serve equally for both sexes. The wing venation of the tribe is rather uniform, although at the same time subject to aberration. In the generic key, separate male and female characters have been used to distinguish *Protochauliodes* from *Neohermes*, but with *Parachauliodes* and *Neochauliodes* I have failed to find a satisfactory character to separate the females. It should be pointed out that in both sexes the abdomen shrinks considerably in drying and that the form of the genitalia can often only be clearly made out after removal and treatment in KOH solution. All the genitalia drawings in this paper have been made from dissections so treated.

KEY TO GENERA OF CHAULIODINI

1. Posterior branch of Rs in both wings forked; anterior branch of M in hind wings forked . . . . . DYSMICOHERMES Munroe.
–. Posterior branch of Rs in both wings simple; anterior branch of M in hind wings forked or simple . . . . . 2.

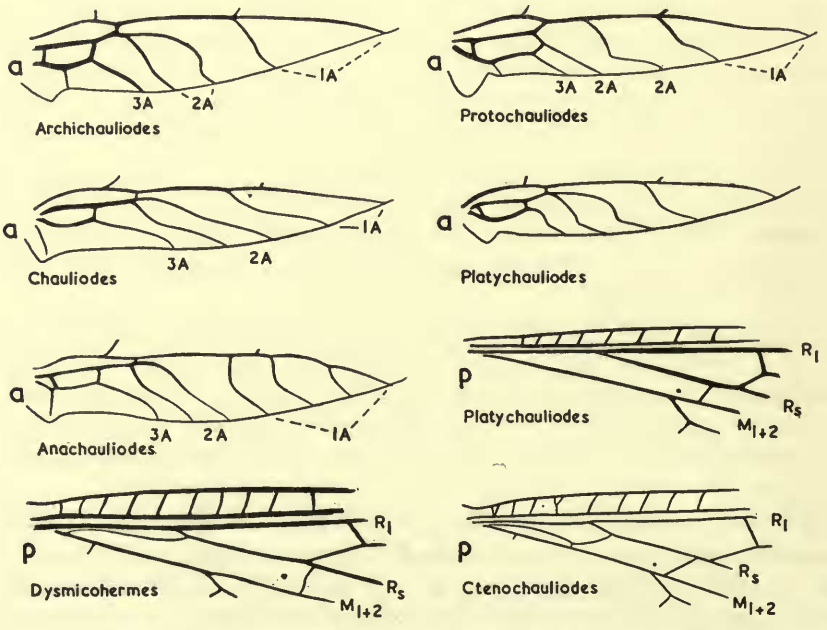

FIG. 1.—Anal area of fore wing, *a*, and anterior basal area of hind wing, *p*.

2. In fore wing, anterior branch of 2A partly fused with 1A, this branch appearing to arise from 1A ; a pigmented area immediately basad of this apparent origin . 3.
–. In fore wing, anterior branch of 2A not fused with 1A, but either it or the stem of 2A connected to 1A by a cross-vein . . . . . 5.
3. Anterior branch of M in hind wing forked . . . . . 4.
–. Anterior branch of M in hind wing simple . . TAENIOCHAULIODES Esben-Petersen.
4. Male antenna without a whorl of erect hairs on each segment ; lateral gonapophyses of ninth segment of female with a small apical cercus. No cross-vein in marginal fork of R_3 in fore wing (sometimes absent in *Neohermes*) . PROTOCHAULIODES Weele.[1]
–. Male antenna with erect hairs on each segment other than the basal ; lateral gonapophyses of female without small apical cercus : cross-vein in marginal fork of R_3 in fore wing generally present . . . . . NEOHERMES Banks.
5. Species from Australia, New Zealand, Chile, S. Africa or Madagascar . . . 6.
–. Species with a Nearctic or Oriental distribution . . . . . 7.
6. Species from Australia, New Zealand or Chile ; wings generally long and narrow ARCHICHAULIODES Weele.[2]
–. Species from S. Africa or Madagascar ; wings relatively broader PLATYCHAULIODES Esben-Petersen.[3]
7. Nearctic species . . . . . 8.
–. Oriental species . . . . . 9.
8. Wings mainly blackish brown, with opaque creamy white markings NIGRONIA Banks.
–. Wings greyish hyaline, venation with fuscous spots . . CHAULIODES Latreille.
9. 1A in fore wing with three or four branches . . . ANACHAULIODES gen. n.
–. 1A in fore wing with only two branches . . . . . 10.
10. In fore wing, fork of 2A with a definite footstalk . . . . . 11.
–. In fore wing, fork of 2A sessile . . . . . CTENOCHAULIODES Weele.
11. Male antenna serrate, anal plates horizontally bilobed . . PARACHAULIODES Weele.
–. Male antenna pectinate, anal plates simple . . . . NEOCHAULIODES Weele.

Archichauliodes guttiferus (Walker).

Figs. 2, 3.

Hermes guttiferus Walker, 1853, *List Neur. Ins.* B.M. **2** : 204.
Chauliodes guttiferus (Walker), McLachlan, 1867, *J. Linn. Soc. Zool.* **9** : 260 ; McLachlan, 1869, *Ann. Mag. Nat. Hist.* (4) **4** : 39. Weele, 1907, *Notes Leyden Mus.* **28** : 252, figs. 19, 20 ; pl. 4, fig. 2.
Archichauliodes guttiferus (Walker), Weele, 1910, *Cat. Coll. Zool. Selys*, fasc. **5**(1) : 48. Tillyard, 1926, *Ins. Aust. N. Z.* : 313.

Examination of the material over this name in the British Museum (N.H.) revealed the presence of three species with almost identical wing markings but entirely distinct genitalia in both sexes. This raised the question to which of the three

[1] The unique ♀ type of *P. dubitatus* (Walker) differs from the true *Protochauliodes* in having the basal *r-m* cross-vein completely lacking in both hind wings. In view of the fact that it is a unique, from an unknown locality (variously suggested to be New Zealand or S. America) and possibly aberrant, it is proposed to leave it for the present in *Protochauliodes*. One must not overlook the possibility of its being an aberrant *Neohermes*, the transverse fuscous band in the basal part of the fore wing at the level of the cubital fork certainly resembling that found in *Neohermes*.

[2] In *Archichauliodes diversus* (Walker) from New Zealand the basal *r-m* cross-vein in the hind wing appears to be very unstable and often obsolete.

[3] Paulian's figure of the venation of his *Madachauliodes torrentialis* shows no basal *r-m* cross-vein in the hind wing, and would thus run out in this key to *Platychauliodes*, from which it appears to differ in a longer fork to Cu_1 in both wings.

should the name *guttiferus* Walker be applied. Walker's type has for many years lacked antennae and abdomen and I have seen no statement in print as to its sex. The female example figured by Weele (1907, pl. 4, fig. 2) is certainly not the type.

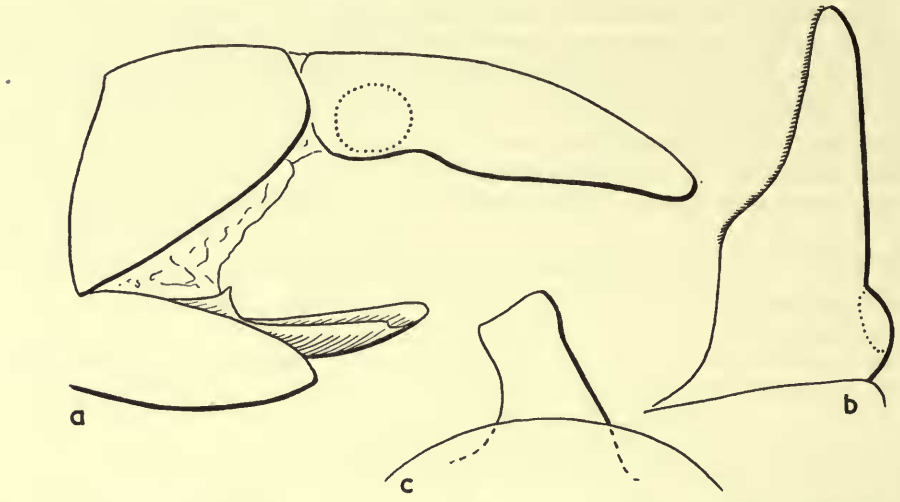

FIG. 2.—*Archichauliodes guttiferus* (Walker). Male genitalia. *a*, lateral; *b*, left anal plate, dorsal; *c*, ninth sternite and aedeagus, ventral.

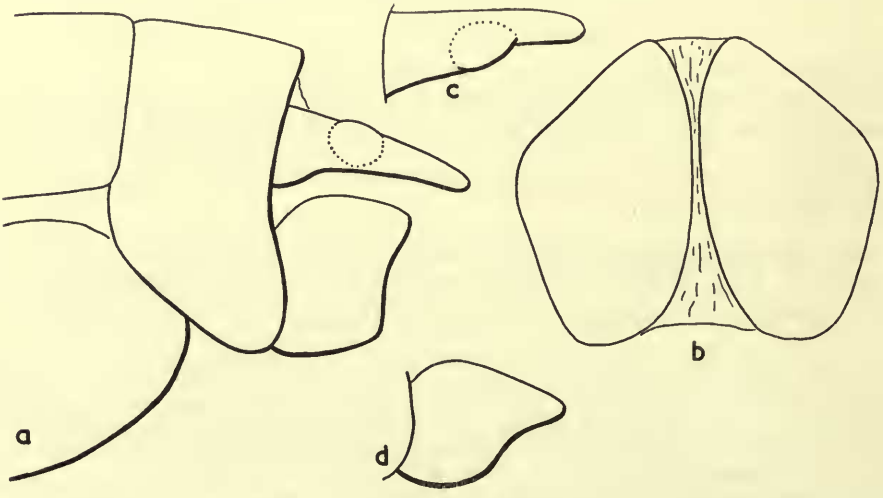

FIG. 3.—*Archichauliodes guttiferus* (Walker). Female genitalia. *a*, lateral; *b*, eighth sternite, ventral; *c* and *d*, anal plate and lateral gonapophyses, lateral, from another specimen.

The antennae and abdomen may even have been missing at the time of the original description, since neither part is mentioned and Walker quotes the length of the body with a question-mark.

Before attempting a decision as to the identity of Walker's *guttiferus*, preparations of the abdomens of a number of females (excluding *A. deceptor* sp. n. from Queensland) were made and these, while showing some individual variation, seemed to fall into two groups on the structure of the eighth abdominal sternite. Comparison of the wing pattern of these two groups then revealed some not very easily defined differences, and by comparing Walker's type with these two groups, it appeared to resemble most closely the group the males of which agreed with the figures of the genitalia given by Weele (1907, figs. 19–20). It is fortunate that we are thus able to retain Weele's interpretation of this species. To facilitate identification of these very similar-looking species I am describing and figuring Walker's *guttiferus* as well as the two new species. Examination of long series of Australian material may perhaps prove that what I have considered to be individual variations are really specific differences, but this is a matter which can only be decided by Australian students.

Body-colour fuscous. Antennae, palpi and bases of ocelli piceous. Pronotum a little longer than broad, tapering slightly anteriorly. Legs uniformly fuscous. Abdomen reddish black, anal appendages piceous. Wings elongate, apices ovate; membrane slightly brownish hyaline, venation pale fuscous. Fore wing lightly speckled with small brownish dots between the veins, and with rather larger ones at the origin of Rs, and along the costal margin before and after the pterostigma. Hind wing with a few brownish dots in the apical part of the wing, and with four larger spots, two along the costal margin (one at each end of the pterostigma) and the other two between Rs and M, surrounding the facetic spots. The basal of these spots usually overlaps both Rs and M. The hind wing spots sometimes enclose paler areas, giving them a pupillate appearance.

♂ GENITALIA. Ninth sternite about as long as tergite, forming a broad subgenital plate. Anal plates about one and one-half times as long as ninth segment. From the side, each is slender, tapering gradually to apex and slightly down-curved, with a group of trichobothria at its base. From above it is broad at its base, abruptly narrowed about midway to half its width and then gradually narrowing to apex, inner margin spinose. Aedeagus with an arched base, centre of its apical margin produced in an asymmetric, obliquely truncate lobe. There appears to be some individual variation in the length and shape of this lobe.

♀ GENITALIA. Eighth sternite divided longitudinally into two broad sclerites, linked by membrane. Ninth tergite deep, lower angles obliquely truncate; lateral gonapophyses short, sub-quadrate, upper margin convex, apical margin slightly concave, upper apical angle more or less produced. Anal plates long, slender.

Length of fore wing, 23–30 mm.

Holotype (lacking antennae and abdomen, sex doubtful, locality unknown) in Brit. Mus. (N.H.). Additional examples in this collection from AUSTRALIA: New South Wales, Upper Murrumbidgee River, Rule's Point, 4,450 ft., 20.xii.1934 (R. J. Tillyard) and Mt. Kosciusko, 2,700 ft., 22.i.1885, 16.i.1888. Victoria, Melbourne.

Archichauliodes plomleyi sp. n.

Fig. 4.

AUSTRALIA: New South Wales, Mt. Irvine, 2,300 ft., 25.xii.1934 (N. J. B. Plomley), holotype ♂, allotype ♀ and 2 ♂ paratypes; Heathcote, bred 26.xii.1916, (R. J. Tillyard), 1 ♀ paratype; no other data, Saunders, 68–3, 1 paratype (without abdomen).

Victoria, Melbourne, 1 paratype (lacking apex of abdomen). Australia, no other data, 3 ♀, 1 ? (lacking abdomen), paratypes. All the above examples in Brit. Mus. (N.H.).

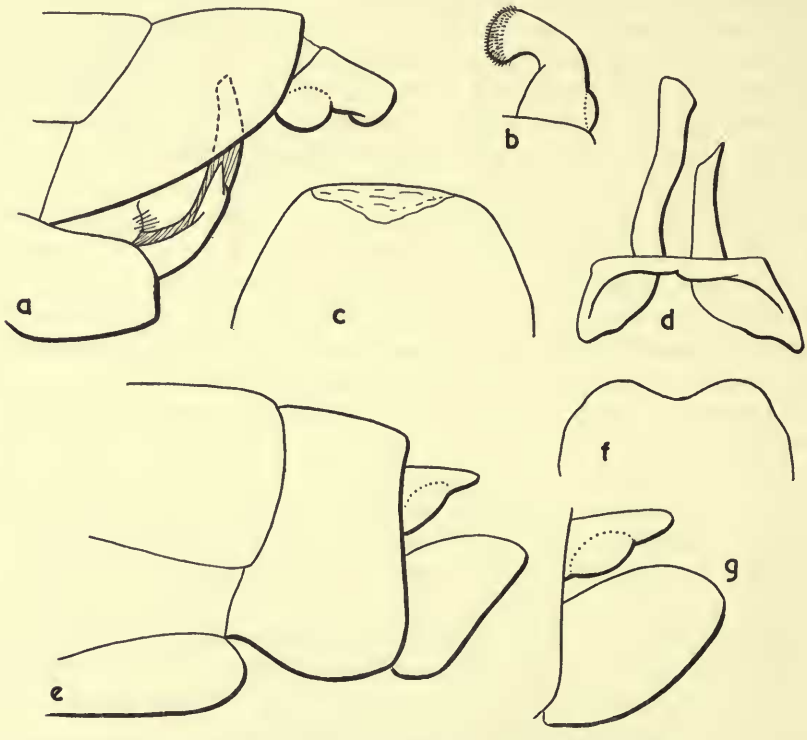

FIG. 4.—*Archichauliodes plomleyi* sp. n. Genitalia, male *a–d*; female *e–g*. *a*, lateral; *b*, left anal plate, dorsal; *c*, ninth sternite, ventral; *d*, aedeagus, dorsal; *e*, lateral; *f*, eighth sternite, ventral; *g*, anal plate and lateral gonapophyses of another example.

General appearance as in *A. guttiferus* (Walker). The fore wing spots are perhaps a little less dense. Hind wing with four or five large fuscous spots, usually smaller than in *guttiferus* and with the basal spot usually not or only slightly overlapping Rs and M. Spots not pupillate. Fifth spot, when present, over the inter-cubital cross-vein.

♂ GENITALIA. Ninth sternite rather shorter than the overhanging tergite, forming

a broad subgenital plate, its apical margin flattened and semi-membranous. Anal plates short, from above sharply bent inwards, apices clavate and spinose ; there is a large, rounded, basal group of trichobothria. Aedeagus forming a truncate basal arch, from which arise two stout, up-curved, unequal spines, one acute, the other truncate at apex.

♀ GENITALIA. Eighth tergite entire, sclerotized, from beneath parallel-sided, apical angles produced in rounded lobes. Ninth tergite deep, lateral gonapophyses forming flattened, ovate or pyriform valves. Anal plates short, conical, varying somewhat in width at base.

Length of fore wing, 24–28 mm.

Holotype ♂, allotype ♀, each with abdomen mounted in canada balsam. Apart from the differences already mentioned above, *A. plomleyi* may be separated from *guttiferus* by the short, incurved anal plates and the two asymmetric spines of the aedeagus in the male and by the entire eighth sternite with rounded apical lobes and the shorter anal plates in the female.

The collector informs me that Mt. Irvine is one of the Western mountain range, about seventy miles west of Sydney.

Archichauliodes deceptor sp. n.

Fig. 5.

AUSTRALIA : Queensland, Toowoomba, 2,000 ft., 10.xii.1884, 1 ♂, holotype ; no other data (F. P. Dodd), 1 ♀, allotype, 1 ♀ paratype. All in Brit. Mus. (N.H.).

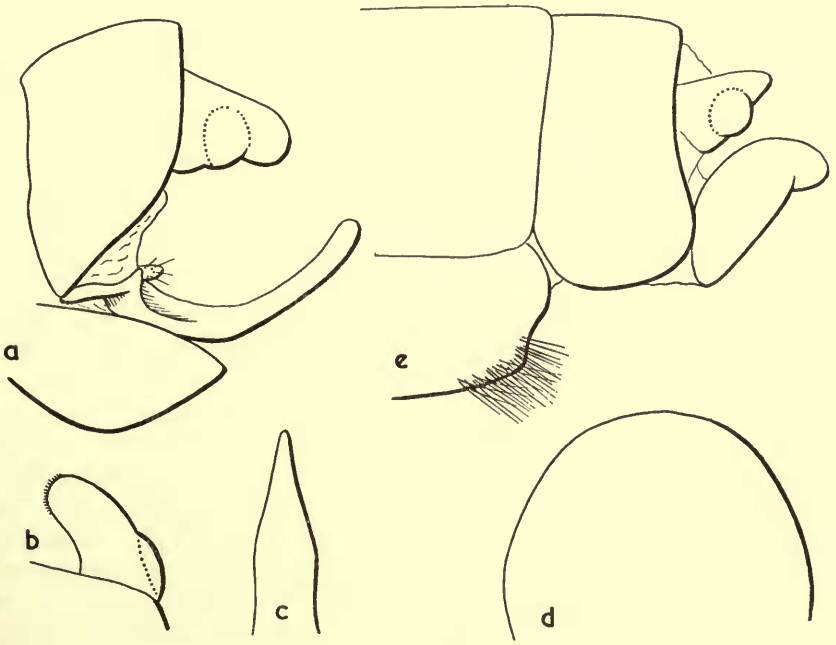

FIG. 5.—*Archichauliodes deceptor* sp. n. Genitalia, male *a–d*, female *e*. *a*, lateral, *b*, left anal plate, dorsal ; *c*, aedeagus, ventral ; *d*, ninth sternite, ventral ; *e*, lateral.

In general appearance scarcely distinguishable from *A. guttiferus* and *A. plomleyi*. The femora and tibia are generally lighter than the tarsi, with a darker patch at the apex of the femora.

♂ GENITALIA. Ninth tergite hooded, its apical margin slightly convex. Ninth sternite about as long as tergite, apical margin rounded, not membranous. Anal plates short, stout, somewhat incurved, with a large lateral group of trichobothria. Aedeagus long, slender, up-curved, not asymmetric, apex rounded from the side, pointed from beneath.

♀ GENITALIA. Eighth sternite sclerotized, pigmented, before the apex elevated in two low, rounded, hairy mounds. Ninth segment moderately deep, lateral gonapophyses about as long as segment, rather narrow, directed obliquely upwards, apex bent somewhat tailward and rounded. Anal plates short, conical, each with a large lateral group of trichobothria.

Length of fore wing : ♂ 25 mm. ; ♀ 27 mm.

Holotype ♂, allotype ♀ each with abdomen mounted in canada balsam. In both male and female genitalia this species is more nearly related to *plomleyi* than *guttiferus*. The male differs from the former in its less incurved anal plates and in the long single spine of the aedeagus. The female differs in the less developed eighth sternite and in the shape of the anal plates and lateral gonapophyses.

Archichauliodes australica sp. n.

Fig. 6.

AUSTRALIA : New South Wales, Upper Murrumbidgee River, Rule's Point, 4,450 ft., 20.xii.1934 (R. J. Tillyard), 1 ♀, holotype, in Brit. Mus. (N.H.).

Body-colour dark fuscous. Mandibles pale yellowish. Antennae filiform, the segments very slightly inflated on inner side but scarcely subserrate. Lateral margins of head behind eyes with a fringe of short silvery hair. Abdomen with obscure, transverse, fulvous lines.

Wings elongate, acutely rounded at apices. Membrane greyish hyaline with brownish venation, fore wing with three conspicuous brown markings in the stigmal area and with numerous small brown spots along the veins and encroaching on the membrane. Hind wing practically without markings other than the brownish stigmal area. Venation much as in *guttiferus* but costal cross-veins in fore wing less numerous and straighter. In the right wing there is an aberrant cross-vein connecting the basal *r–m* cross-vein with M.

♂ GENITALIA. Ninth tergite large, hooded, its apical dorsal margin with a wide shallow triangular excision ; sternite short, broad, apical margin forming a flattened ellipse. Anal plates stout, in side view with a rounded lobe on lower margin about midway, then tapering to a rounded apex. The group of trichobothria are situated on a projecting ovate wart close to the base. From above the inner margin produced in a triangular lobe, set with spinules. Aedeagus forming an arched plate, in dorsal view the basal arms spirally twisted about midway. The centre of the arch is produced in two slightly incurved plates, their upper basal margins fused and elevated in a triangular lobe as seen from the side.

Length of fore wing, 25 mm.

Type ♂ with abdomen mounted in canada balsam. This specimen may well be one of those referred to by Tillyard (1926, *Ins. Aust. N.Z.* : 313) " the mountain forms [of *A. guttiferus*] closely resemble the New Zealand species." After the publication of this work he took typical *A. guttiferus* at the same locality as this new species, which differs from *A. guttiferus* (Walker) in the almost complete absence of spots, apart from those along the fore wing veins, the more pointed wings, less moniliform antennae and shorter, blunter anal plates.

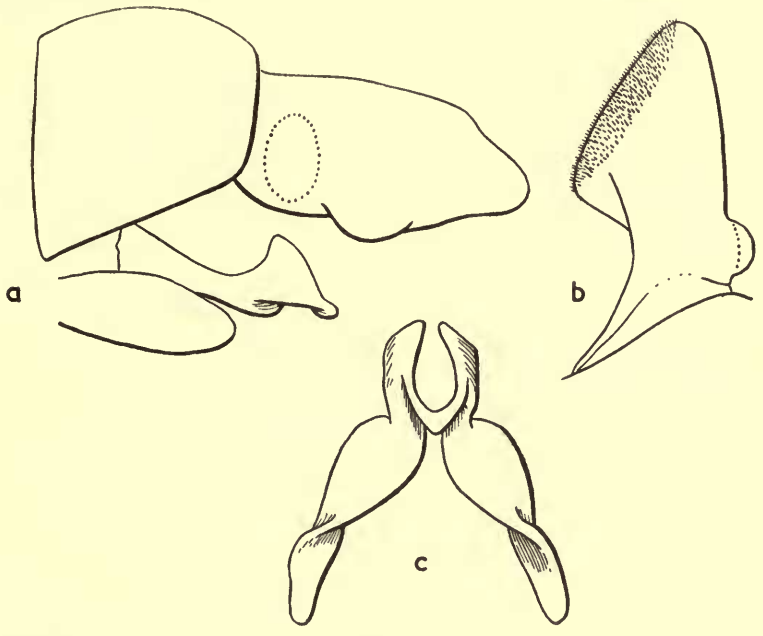

FIG. 6.—*Archichauliodes australica* sp. n. Male genitalia. *a*, lateral ; *b*, left anal plate, dorsal ; *c*, aedeagus, dorsal.

Archichauliodes chilensis sp. n.

Figs. 7, 8.

S. AMERICA : Chili (Calvert), 1 ♂, holotype, 1 ♀, allotype ; (Reed), 3 ♀ paratypes ; (McLachlan collection), 1 (lacking abdomen), paratype. S. Chili, Araucania (R. M. Middleton), 1 ♀, paratype. All in Brit. Mus. (N.H.).

Antennae moniliform in both sexes, dull blackish brown, the two basal segments shining reddish brown. Body dull reddish or blackish brown, head with a patch in front of each antenna, and the back of the head, orange-brown. Wings elongate-elliptical, apices a little less acute in male than in female, membrane pale brownish hyaline, venation brownish, some of the longitudinal veins in hind wing narrowly bordered with brownish. In fore wing the membrane is lightly speckled with darker

brown adjoining the veins, and in the apical half of the wing there is a brownish streak running longitudinally through the cells. The pterostigma is more heavily marked with two brownish spots, and there is a brownish cloud over the fork of 2A.

♂ GENITALIA. Ninth sternite from beneath parabolic, with a semi-membranous, triangular process extending beyond its apex (much as in *A. diversus* (Walker)). Anal plates short and stout, in side view slightly curved downward near the apex, which is truncate. From above, the apex is rounded and clothed internally with dense black spinules. Beneath these appendages is the aedeagus, hinged at its basal angles to the lower angles of the ninth tergite. From above it resembles an inverted " V," with a blunt, bifid apex, which in the holotype is somewhat asymmetric.

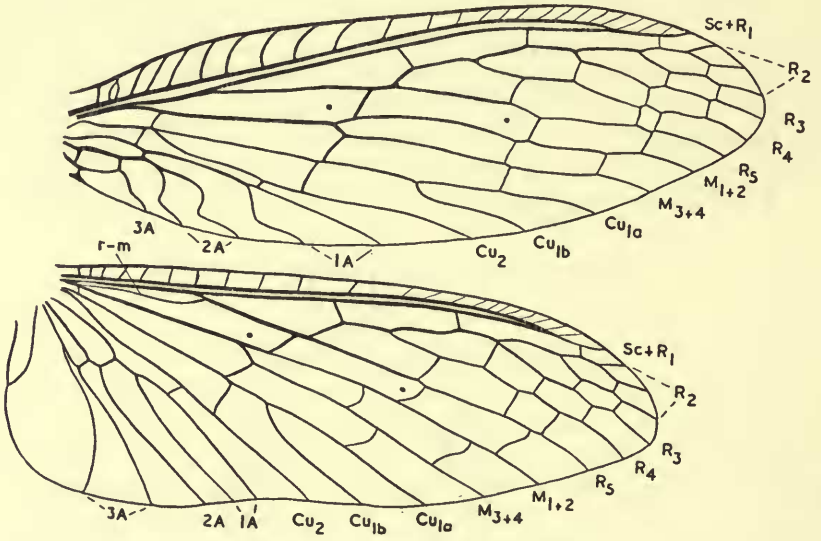

FIG. 7.—*Archichauliodes chilensis* sp. n. Male wings.

The outer margin of each apical lobe is armed with a small acute tooth. From the side these lobes are directed obliquely upward.

♀ GENITALIA. Eighth sternite more sclerotized than its tergite, somewhat produced apically in a subgenital plate. Ninth tergite as deep as eighth segment, mainly sclerotized but with a wide, apical, membranous area simulating an excision. The lower basal margins of the tergite overlap the eighth sternite ; lateral gonapophyses elongate and slightly tapering from base to apex. Ninth sternite membranous. Anal plates short, each rather stout at the base and bearing a large, rounded group of trichobothria, apex finger-like and somewhat flexible.

Length of fore wing : ♂ 27 mm. ; ♀ 29–42 mm.

This species in general appearance resembles *Protochauliodes cinerascens* (Blanchard), but may be separated from it by the stalked condition of the fork of 2A in the fore wing and by the more basal position of the first fork of Rs in both wings.

From *A. diversus* (Walker) it may be separated by the absence of any brown speckling along the branches of Rs in the hind wing and by the shape of the anal plates, the aedeagus beneath them and of the ninth sternite.

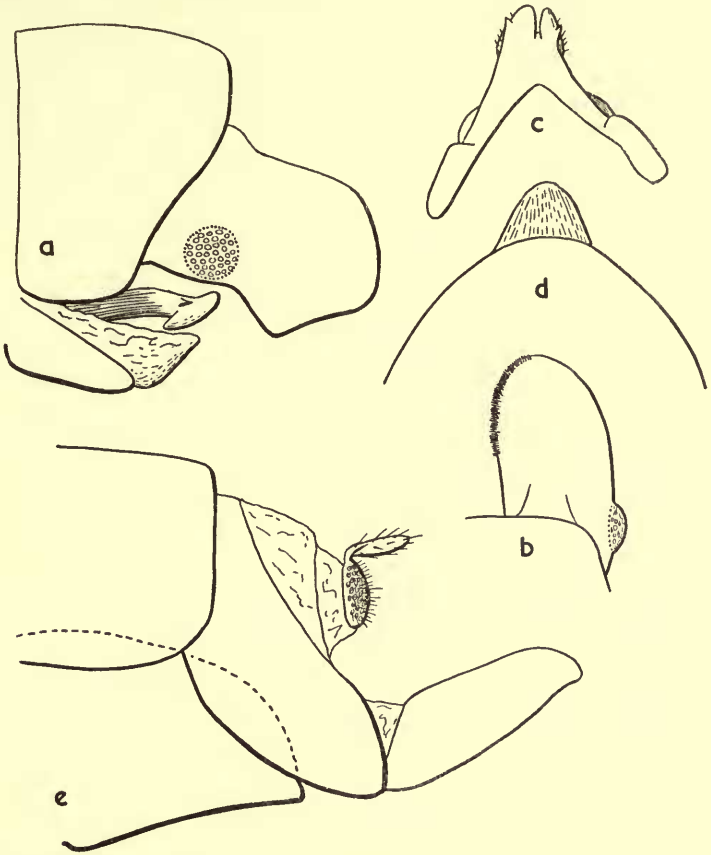

FIG. 8.—*Archichauliodes chilensis* sp. n. Genitalia, male *a–d*, female, *e*. *a*, lateral; *b*, left anal plate, dorsal; *c*, aedeagus, dorsal; *d*, ninth sternite, ventral; *e*, lateral.

ANACHAULIODES gen. n.

♂. Antenna pectinate. Wings with apical branches of Rs somewhat curved posteriorly near apices. In fore wing, 1A with three or four branches, fork of 2A sessile, anterior branch not fused with 1A. In hind wing, basal *r–m* cross-vein obsolete.

♂ GENITALIA. Ninth segment not more sclerotized than eighth. Tenth segment forming two large anal plates, apical margin excised, inner surface with a few strong teeth on a small projection. Aedeagus large, strongly sclerotized, hooked downward.

♀ unknown.

Type species, *Anachauliodes tonkinicus* sp. n.

In general appearance, this genus recalls the North American genus *Chauliodes*, from which it differs in the more branched 1A and the more curved apical branches of Rs in the fore wing. The latter character recalls *Neochauliodes*, from which it differs in the obsolete *r–m* cross-vein at the base of the hind wing, as well as the more branched 1A in the fore wing.

Anachauliodes tonkinicus sp. n.

Figs. 9, 10.

TONKIN : Ngai-Tio, 4,800 ft., 22.v.1924 (H. Stevens), 1 ♂, holotype, Brit. Mus. (N.H.).

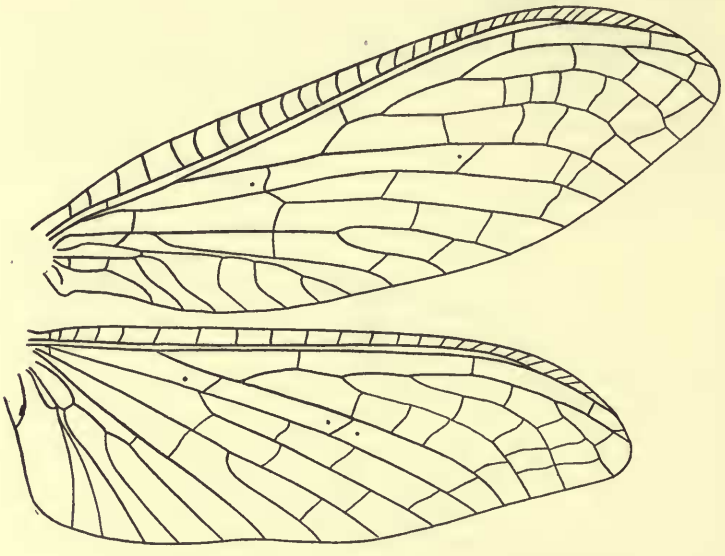

FIG. 9.—*Anachauliodes tonkinicus* gen. sp. n. Male wings.

Body-colour light fuscous. Antenna piceous, strongly pectinate. Labrum, anteclypeus and mandibles fulvous. Pronotum about as broad as long, slightly narrowed anteriorly. Legs fuscous, femora with a fulvous stripe above. Wings greyish hyaline, venation of fore wing luteous with fuscous interruptions, hind wing mainly fuscous. Fore wing with a dark fuscous patch in costal area basad of the creamy pterostigma, several fuscous spots in subcostal area, a fuscous patch near base of wing, a paler fuscous cloud across the centre of the wing and with fuscous irrorations spreading out from the vein markings. Costal cross-veins fuscous. Hind wing practically without markings.

♂ GENITALIA. Ninth segment scarcely more sclerotized than eighth, tergite somewhat extended in a hood, sternite forming a short, rounded subgenital plate. Anal plates large, each with a central group of trichobothria. Apical margin of anal

plate produced in two rounded lobes, separated by an excision. The upper lobe is the smaller and carries on its lower inner surface a short, dentiferous projection. Lower lobe about twice as deep as upper. Aedeagus large, heavily sclerotized, from the side curved downward, with an acute, hooked apex. The upper surface is produced to form two recurved, triangular plates, from the side appearing as a hook. From above, the aedeagus arises from a wide, arched base, parallel-sided as far as the recurved plates, then narrowed and tapering to the down-turned apex.

Length of fore wing, 43 mm.

Type with abdomen mounted in canada balsam.

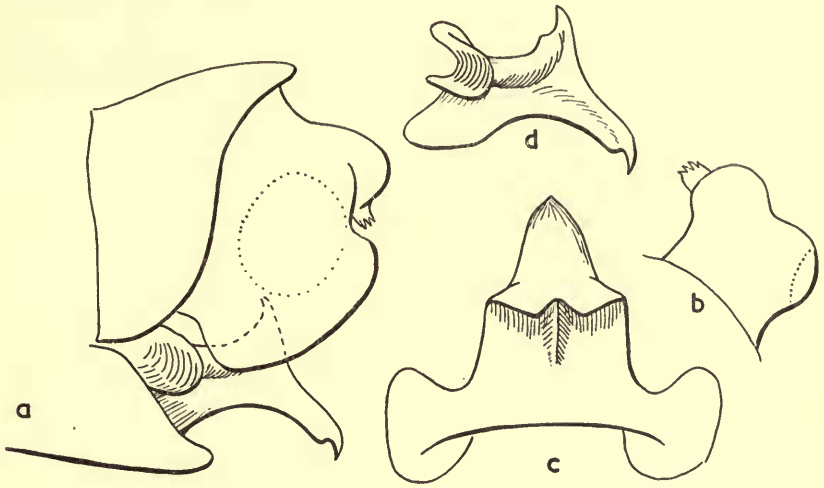

FIG. 10.—*Anachauliodes tonkinicus* gen. sp. n. Male genitalia. *a*, lateral; *b*, left anal plate, dorsal; *c*, aedeagus, dorsal; *d*, aedeagus, lateral.

CTENOCHAULIODES Weele

Weele, 1909, *Notes Leyden Mus.* **30** : 263 ; id., 1910, *Coll. Zool. Selys*, **5** (1) : 70.
Type species, *Chauliodes nigrovenosus* Weele, 1907.

Antennae pectinate in female and probably in male also. In hind wing, basal *r–m* cross-vein strong and re-connected to M by a cross-vein. In the genitalia of the presumed male, there is a sclerotized plate beneath the anal plates, probably the tenth sternite. It is possible that in some other genera (such as *Neohermes*) this plate has become fused to the aedeagus.

Ctenochauliodes forcipatus sp. n.

Fig. 11.

CHINA : [Szechwan?], Kwanshien, July 1930 (G. M. Franck), ♂ holotype.
W. CHINA : Chin-Fu-San (W. A. Maw), ♂ paratype. (Both in Brit. Mus. (N.H.)).
Body-colour reddish brown. Antennae broken, with only two basal segments

remaining (probably pectinate). Labrum reddish piceous, inter-ocellar space piceous, palpi fuscous. Legs dark fuscous. Membrane of wings brownish hyaline, fore wing with dark fuscous markings forming vague clouds, more particularly at base and apex of costal area. Venation reddish brown, costal cross-veins in fore wing sinuously bent in basal half of wing.

♂ GENITALIA. Ninth tergite short and deep, sternite forming a wide, rounded subgenital plate, its apical margin produced in a triangular, membranous lobe. Anal plates from side deep at base, upper angle produced in a stout finger, incurved, lower apical angle of the finger further produced inward in a triangular lobe. Group of trichobothria set low down on anal plate. Beneath the anal plates is a pigmented, sclerotized plate, probably the tenth sternite, its lower angles projecting in rounded, hairy processes. Aedeagus forming a pair of thin, rounded plates with slender bases. These plates are slightly asymmetric, fused for a short distance medially and slope downwards in roof-fashion from the centre line.

Length of fore wing, 27 mm.

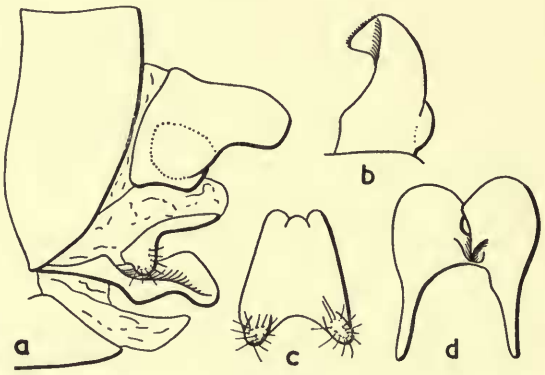

FIG. 11.—*Ctenochauliodes forcipatus* sp. n. Male genitalia. *a*, lateral; *b*, left anal plate, dorsal; *c*, tenth sternite, from behind; *d*, aedeagus, dorsal.

Holotype and paratype each with apex of abdomen mounted in canada balsam. The paratype has the wings damaged, as also is the apex of the abdomen, but as far as can be ascertained it appears to be conspecific with the type. This species differs from *C. nigrovenosus* (Weele) in the much more uniformly coloured wings.

PARACHAULIODES Weele

Weele, 1909, *Notes Leyden Mus.*, **30** : 250; id., 1910, *Coll. Zool. Selys*, fasc. **5** (1) : 58.
Type species (original designation), *Chauliodes japonicus* McLachlan, 1867.
= *Metachauliodes* Weele, 1910, *Coll. Zool. Selys*. fasc. **5** (1) : 46, 55, 61. (*Lapsus calami.*)

The figures and descriptions of the male genitalia given by Weele were based upon dried material and are not entirely satisfactory. New figures and descriptions have been made, from preparations cleared in KOH solution, of the two species. It should

be noted that the actual illustrations nos. 47 and 48 in Weele's monograph on the Sialidae have been transposed, the lateral view of *continentalis* appearing with the ventral view of *japonicus*.

Parachauliodes japonicus (McLachlan)

Fig. 12.

Chauliodes japonicus McLachlan, 1867, *J. Linn. Soc. Zool.* **9** : 232.
Parachauliodes japonicus (McLachlan) Weele, 1909, *Notes Leyden Mus.* **30** : 259 ; id., 1910, *Coll. Zool. Selys.* fasc. **5** (1) : 58, figs. 46, 48 ; pl. 4, fig. 29.

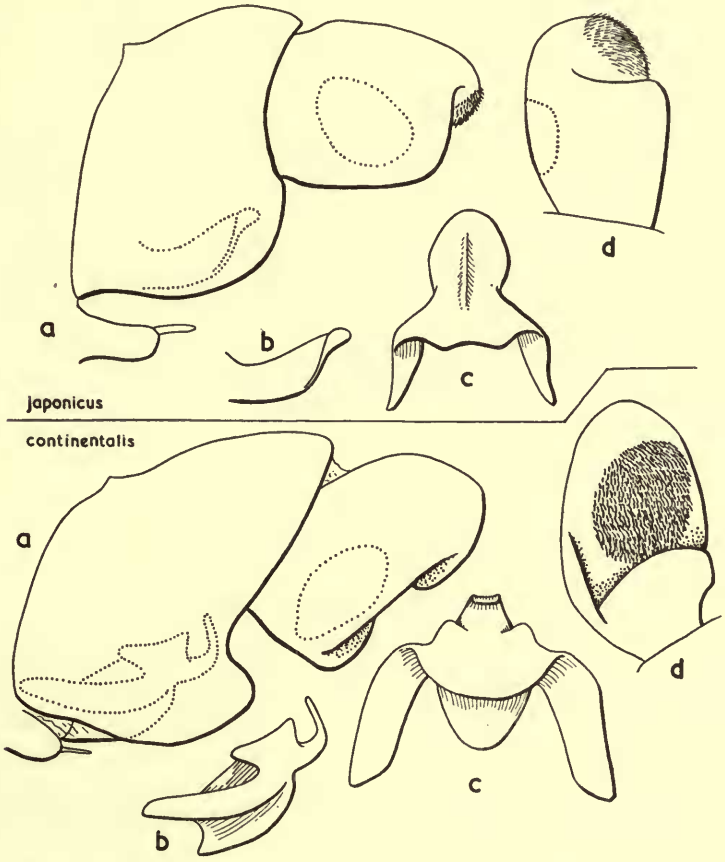

FIG. 12.—*Parachauliodes japonicus* (McLachlan) and *P. continentalis* Weele (holotype). Male genitalia. *a*, lateral ; *b*, aedeagus, lateral ; *c*, aedeagus, dorsal ; *d*, left anal plate, ventral.

♂ GENITALIA. Ninth tergite with its apical margin produced, its centre slightly concave ; lower apical angle produced and rounded, covering the aedeagus in side view. Ninth sternite less sclerotized than eighth, short, broadly rounded, with a small, transparent, triangular lobe projecting beyond its centre. Anal plates stout,

longer than deep, each with a shallow, horizontal excision of the apex, dividing it into a rounded upper part and a shallow, right-angled lower lobe. This excision is more noticeable in dried examples. The upper part is armed on its inner surface with black spinules. Aedeagus forming a short, broad tongue, in dorsal view constricted about midway, its apex rounded, scarcely up-turned, and with its lateral margins elevated.

Parachauliodes continentalis Weele

Fig. 12.

Parachauliodes continentalis Weele, 1909, *Notes Leyden Mus.* **30** : 259 ; id., 1910, *Coll. Zool. Selys.* fasc. **5** (1) : 60, fig. 47, pl. 4, fig. 30.

♂ GENITALIA (from holotype). Ninth tergite produced in a rounded hood, from the side with a definite excision of the apical margin below the attachment of the anal plates, the lower apical angle so formed being subtriangular, obscuring the aedeagus. Ninth sternite small, semi-membranous. Anal plates large, from the side obliquely truncate at apex and divided into an upper and a lower portion by a horizontal excision. From beneath, the lower portion is relatively short, about one-third as long as upper, which carries a round area of black spinules on its lower inner surface. The group of trichobothria is situated rather low on the outer surface. Aedeagus short, with divergent, basally directed arms, a pair of triangular lobes on its anterior upper surface, beyond which the apex is produced in a thin, up-curved tongue.

KOREA.

NEOCHAULIODES Weele

Weele, 1909, *Notes Leyden Mus.* **30** : 259 ; id., 1910, *Coll. Zool. Selys*, **5** (1) : 60.

Type species (by designation of Weele, 1910), *Chauliodes sinensis* Walker, 1853.

This genus differs from *Parachauliodes* chiefly in the pectinate antennae of the ♂ (serrate in *Parachauliodes*) and in the simple anal plates, less produced lateral angles of the ninth tergite and the longer aedeagus of the male. The wing venation is variable, some species having the branches of Rs running almost straight to the wing margin, whereas in others (such as the *sinensis* group) some of these branches are sharply curved posteriorly before reaching the margin. I know of no reliable characters by which to separate the females of the two genera and had it not been that the antennal difference in the males is to some extent confirmed by differences in the genital structure, I should have considered the two genera as synonymous.

Sufficient material has not been available to determine to what extent the external genitalia of the female can be relied upon as specific characters. Differences occur in form of the eighth sternite, anal plates and lateral gonapophyses, but in the absence of long series of authentic material, it has been decided to figure the female genitalia of those species only, of which the female is the holotype.

Neochauliodes simplex (Walker)

Fig. 13.

Chauliodes simplex Walker, 1853, *List Neur. Ins. B.M.* : 200.
Neochauliodes simplex (Walker), Weele, 1910, *Coll. Zool. Selys*, **5** (1) : 61, fig. 49 ; pl. 4, fig. 31.

Weele's figure and description of the male genitalia were made from a dried example of Walker's type series. This example, bearing Weele's determination label, has now had the abdomen cleared in KOH solution and new figures and description prepared.

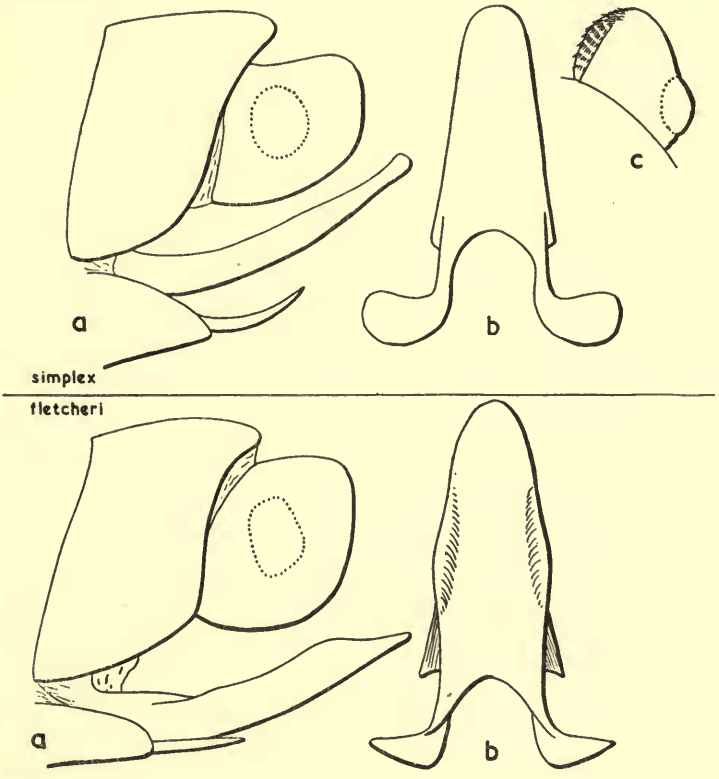

FIG. 13.—*Neochauliodes simplex* (Walker) paratype, and *N. fletcheri* sp. n. holotype. Male genitalia. *a*, lateral ; *b*, aedeagus, dorsal ; *c*, left anal plate, dorsal.

♂ GENITALIA. Apical margin of the ninth tergite convex, sternite broadly rounded, its centre produced in a thin, triangular tongue. Anal plates short and stout, from the side subquadrate, rather longer than deep, with rounded angles, from above ovate, with rows of comb-like teeth on the inner surface. Aedeagus long, spatulate, slightly up-curved, its apex a little dilated in side view. From above it tapers gradually to a broadly rounded apex.

Length of fore wing, ♂ 25–28 mm., ♀ 27–34 mm.

INDIA : Assam, Sylhet, Shillong, Khasi Hills ; United Provinces, Gahrwal.

Neochauliodes fletcheri sp. n.

Fig. 13.

INDIA: Assam, Shillong, 5,000 ft., 26.vi–10.vii.1928 (T. Bainbrigge Fletcher), 3 ♂, 1 ♀ (♂ holotype, 8.vii, ♀ allotype, 30.vi). All in Brit. Mus. (N.H.).

In coloration and markings similar to *N. simplex* (Walker) but rather larger. The chief structural difference is in the male genitalia. The anal plates in side view are deeper than long. The aedeagus is dark reddish brown, from above with the lateral margins slightly sinuous (straight in *simplex*), somewhat convex about midway. From the side the dorsal margins are also more sinuous, tapering to a narrow apex.

Length of fore wing: ♂ 30–32 mm., ♀ 38 mm.

Holotype with abdomen mounted in canada balsam.

Neochauliodes indicus (Weele)

Fig. 14.

Chauliodes indicus Weele, 1907, *Notes Leyden Mus.* **28**: 255, figs. 21–22, pl. 4, fig. 3.
Neochauliodes indicus Weele, 1910, *Coll. Zool. Selys.* **5** (1): 62.

The specimen here dealt with agrees quite well with Weele's general description and figure of the wings, but there are differences in male genitalia. These may be specific, but after consideration of other instances it is considered that the differences are not more than might be expected in comparing cleared preparations with dried material.

♂ GENITALIA. Apical margin of ninth tergite straight or slightly concave, somewhat depressed at its centre. Ninth sternite moderately short, broad, the centre of its apical margin produced in a transparent, triangular lobe. Anal plates stout, subquadrate from the side, apical margin widely but shallowly excised, so that the apical angles are unusually pronounced. From above the anal plate is thick, its apex truncate, inner surface set with rows of black spinules. Aedeagus broad at base, tapering to a rather narrow, spatulate apex. From the side it is up-curved, stout basally, apex thin and ligulate.

The chief differences between this example and Weele's figure lie in the excised, less obliquely truncate apex of the anal plate and the rather broader apex of the aedeagus. The specimen from which the above description was taken is labelled Sikkim, Gopaldhara, Rongbong Valley, H. Stevens, and I have also seen a female from Darjeeling and another from the Khasi Hills.

Neochauliodes tonkinensis (Weele)

Fig. 14.

Chauliodes tonkinensis Weele, 1907, *Notes Leyden Mus.* **28**: 260, pl. 5, fig. 3.
Neochauliodes tonkinensis Weele, 1910, *Coll. Zool. Selys*, **5** (1): 67, fig. 51.

In the McLachlan Collection are one male and two females from the Ruby Mines district of Burma, which I believe to be Weele's *tonkinensis* (described from a female).

The two females at present under discussion differ somewhat in size (fore wing, 39–50 mm.), and the smaller one and also the male have the wing pattern somewhat resembling *indicus* but with the basal half of the fore wing heavily spotted. The costal area is also heavily spotted and for part of its length has two rows of spots. In the larger female the contrast between the spots and the wing membrane in the distal half of the wings is much greater.

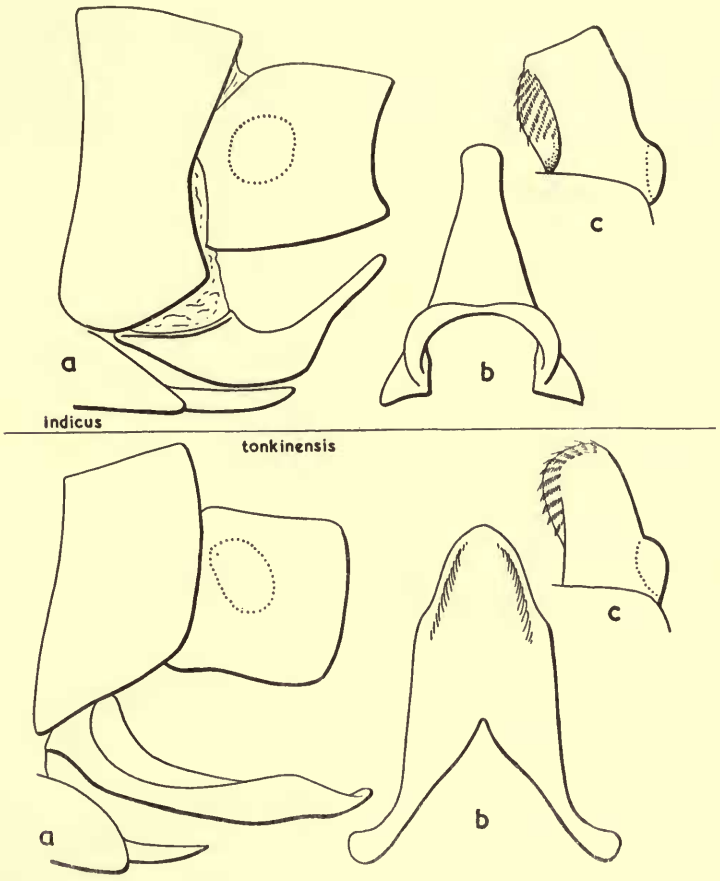

FIG. 14.—*Neochauliodes indicus* (Weele) and *N. tonkinensis* (Weele). Male genitalia. *a*, lateral ; *b*, aedeagus, dorsal ; *c*, left anal plate, dorsal.

♂ GENITALIA. Ninth tergite with apical margin truncate, sternite semi-membranous, forming a short, broad subgenital plate, very slightly excised at its centre, its sides a little concave. Anal plates quadrate from the side, inner apical angle bearing rows of short, comb-like teeth. Aedeagus about twice as long as broad, tapering to a rounded apex in distal half, lateral margins in this area slightly elevated.

Length of fore wing : ♂ 39 mm., ♀ 39–50 mm.

Neochauliodes umbratus sp. n.

Fig. 15.

INDO-CHINA: A. Vuillet, 1 ♂, holotype, in Brit. Mus. (N.H.).

Head dark fuscous, labrum and occiput reddish brown, antennae piceous. Pronotum orange-brown, meso- and meta-nota, legs and abdomen fuscous. Fore wing extensively clouded with fuscous, leaving two indefinite, hyaline bands running obliquely basad from the costal margin, one midway and the other in the apical third. Pterostigma dark brown, long, interrupted by a cream band. Venation brownish, costal cross-veins bordered with fuscous. Hind wing mainly hyaline, with a fuscous cloud at apex and another just beyond the middle, not reaching to the posterior margin.

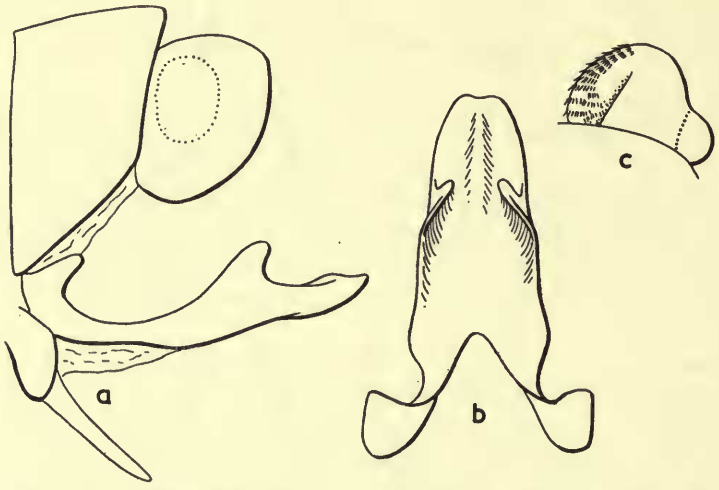

FIG. 15.—*Neochauliodes umbratus* sp. n. (holotype). Male genitalia. *a*, lateral; *b*, aedeagus, dorsal; *c*, left anal plate, dorsal.

♂ GENITALIA. Ninth tergite only slightly produced apically, from the side with lower apical angle very obtuse. Ninth sternite short and broad, its apical margin produced in a lightly sclerotized, thin, triangular lobe or tongue, clothed in microscopic setae. Anal plates globose, short, inner surface with the usual comb-like teeth. From the side the anal plate is ovate, upper margin flattened. Aedeagus elongate, narrow, its lateral margins sinuate and subparallel, and with a rounded, apico-dorsally directed lobe on each side, situated at about one third before the apex, which is shallowly excised.

Length of fore wing, 33 mm.

Type with abdomen mounted in canada balsam. *N. umbratus* may be easily distinguished from the *sinensis* group by the presence of lateral lobes of the aedeagus. These lobes are more apically directed than in *N. bowringi*, to which it is closely related in genital structure.

Neochauliodes bowringi (McLachlan)

Fig. 16.

Hermes sinensis Walker, 1853, *List. Neur. Ins. B.M.* : 203 (nom. preocc.).
Chauliodes sinensis Brauer, 1865 (*nec* Walker, 1853), *Reise Novara*, **1** : 102.
Chauliodes bowringi McLachlan, 1867, *J. Linn. Soc. Zool.* **9** : 260 ; Weele, 1907, *Notes Leyden Mus.* **28** : 259, figs. 23–24 ; pl. 5, fig. 2.
Neochauliodes bowringi (McLachlan) Weele, 1910, *Coll. Zool. Selys*, **5** (1) : 66.

♀ GENITALIA (holotype). Eighth sternite sclerotized, apical margin produced in a parabolic subgenital plate. Ninth tergite sclerotized, short and deep. Lateral gonapophyses as large as anal plates, flattened laterally, quadrate, directed upwards. Anal plates stout, parallel-sided, then abruptly tapered to an acute apex.

CHINA : Hong Kong.

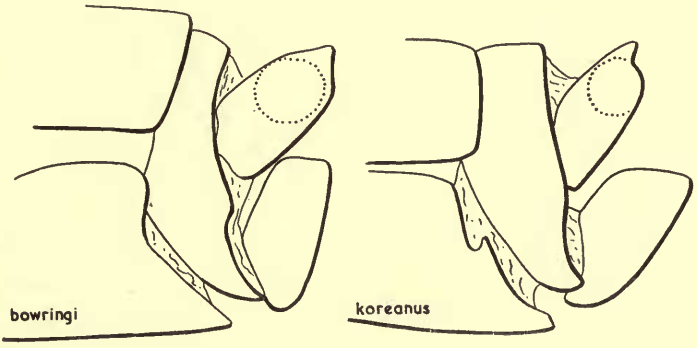

FIG. 16.—*Neochauliodes bowringi* (McLachlan) and *N. koreanus* Weele. Female genitalia, lateral, of holotypes.

Neochauliodes koreanus Weele

Fig. 16.

Neochauliodes koreanus Weele, 1909, *Notes Leyden Mus.* **30** : 261 ; id., 1910, *Coll. Zool. Selys.* **5** (1) : 65, pl. 4, fig. 39.

This opportunity is taken to call attention to two errors in the published locality data of this species. In his original description, Weele writes " Two females from Korea (the types) are in the British Museum." In his Selysian monograph he alters this (without comment) to one female from Korea, Seoul, and one from Hong Kong. The Korean example, which is here designated *holotype*, bears an additional label (quoted by Weele) " Hong Kong Peak, Happy Valley." I feel sure that this is an error and that this label should in fact belong to the Hong Kong example, which incidentally is the one figured by Weele on plate 4.

♀ GENITALIA. Eighth sternite parabolically produced apically. Lateral gonapophyses of ninth sternite foliate, from side with upper margin obtusely angled,

lower slightly convex, apex acutely rounded. Anal plates parallel-sided, lower margin excised before the apex.

In the British Museum there is a second example labelled Hong Kong, from the McLachlan Collection, in which the wings are even more heavily suffused with fuscous.

Neochauliodes sinensis occidentalis Weele

Figs. 17, 18.

Chauliodes sinensis (Walker) Weele, 1907, *Notes Leyden Mus.* **28** : 262 (partim).
Neochauliodes sinensis occidentalis Weele, 1909, *Notes Leyden Mus.* **30** : 260 ; id. 1910, *Coll. Zool. Selys.* **5** (1) : 64, pl. 4, fig. 40.

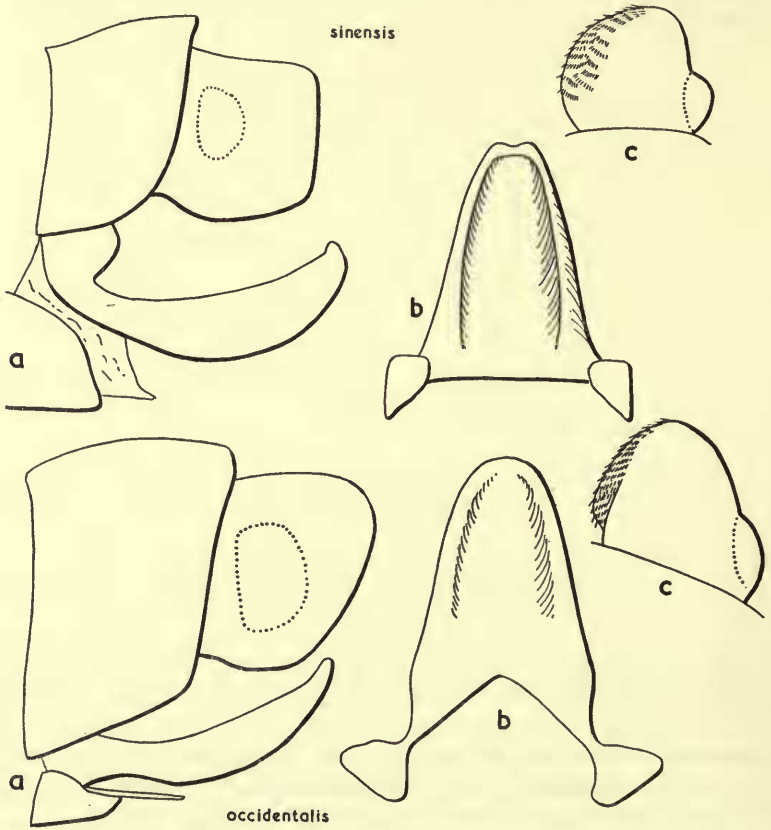

FIG. 17.—*Neochauliodes sinensis sinensis* (Walker) and *N.s. occidentalis* Weele, holotypes. Male genitalia. *a*, lateral ; *b*, aedeagus, dorsal ; *c*, left anal plate, dorsal.

♂ GENITALIA (holotype). Closely resembling those of *N. s. sinensis* (Walker) but differing as follows : Anal plates from the side with apical angles more rounded, apical margin obliquely convex. From above they are rather more pointed. Aedeagus from the side more slender, from above somewhat constricted basally, apex

rounded, not excised. Ninth sternite shorter, with a triangular membranous tongue at its apex.

♀ GENITALIA (allotype). Eighth sternite produced in a subgenital plate, moderately pointed apically in side view. Lateral gonapophyses rather small, shorter than anal plates, flattened and pointed apically. Anal plates rhomboidal in side view, stout in dorsal view, the group of trichobothria almost ventral, not visible from above.

Very closely allied to *sinensis* Walker and probably correctly considered by Weele as a subspecies of it. No holotype appears to have been selected from the type series, and I therefore designate the male in the British Museum (N.H.), with abdomen now mounted in canada balsam, and the female in the same collection as *holotype* and *allotype* respectively. Two other males in the same collection (and the

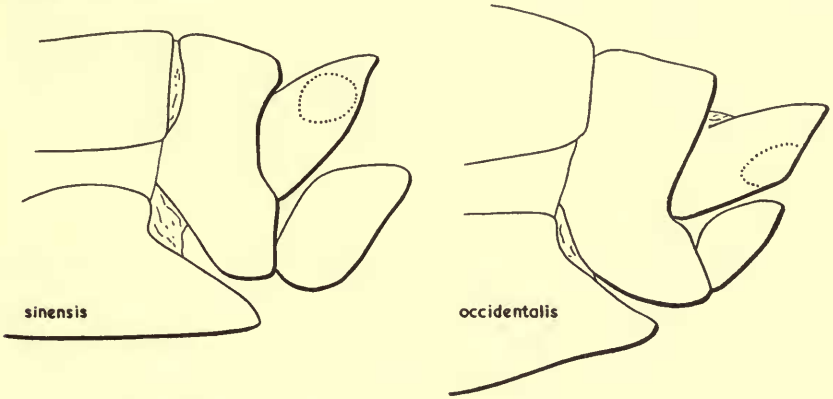

FIG. 18.—*Neochauliodes sinensis sinensis* (Walker) and *N.s. occidentalis* Weele (allotype). Female genitalia, lateral.

series in the Berlin Museum, not seen by me) become paratypes. The above specimens are all from Omei Shan, Szechwan. In the British Museum (N.H.) are two further males from N. W. CHINA (ex McLachlan collection) which agree in wing pattern with the types. Also in the British Museum are a male and female from W. CHINA, Chin-Fu-San, and a male from TONKIN, Ngai-Tio, which differ considerably in wing markings and which may represent two further subspecies of *sinensis*. The male genitalia, however, show only slight comparative differences from *N.s. occidentalis* and it seems wiser therefore to leave them undescribed until more abundant material is available.

Neochauliodes sinensis sinensis (Walker)

Figs. 17, 18.

Chauliodes sinensis Walker, 1853, *List. Neur. Ins. B.M.* : 199 ; Weele, 1907, *Notes Leyden Mus.* **28** : 261, figs. 25–26.
Neochauliodes sinensis (Walker) Weele, 1910, *Coll. Zool. Selys.* **5** (1) : 63.

♂ GENITALIA (holotype). Ninth tergite with apical margin slightly produced,

rather more sclerotized than sternite. The latter is semi-membranous, like the other segments, forming a short, wide subgenital plate, apical margin slightly excised and projecting beyond it is a triangular, membranous lobe. Anal plates short, quadrate from the side, more or less globular from above. The inner surface is set with black spinules, arranged in short, curved, comb-like rows. Aedeagus large, strongly sclerotized, forming an elongate, tapering scoop or tongue, up-curved from the side, its apex shallowly notched.

♀ GENITALIA (MONGOLIA, McLachlan Collection). Eighth sternite with its apical margin produced in a subgenital plate. Ninth tergite short and deep, lightly sclerotized, its apical part membranous. Lateral gonapophyses foliate, semi-membranous, lightly sclerotized and pigmented basally. Anal plates a little larger than gonapophyses, narrow from above, tapering to an acute apex from the side.

The genitalia of the type differ from those figured by Weele (1907) in the form of the aedeagus, which is less dilated apically from the side, and less sharply angled upwards. In dorsal view the lateral margins are evenly convex in apical half, not sinuous. It is possible that these differences may be due to the fact that the present figures have been made after clearing the genitalia in KOH solution.

Neochauliodes sinensis truncatus ssp. n.

Fig. 19.

INDIA: Assam, Khasi Hills, Shillong, 5,000 ft., 13–15.vi.1928 (T. Bainbrigge Fletcher), holotype ♂, allotype ♀ and 1 ♀ paratype, all in Brit. Mus. (N.H.).

General appearance much as in the typical *sinensis* but in the fore wing the oblique, transverse band is largely broken into rounded dots. The head, particularly in the female, is distinctly darker and browner than the orange pronotum.

♂ GENITALIA. Ninth tergite with its apical margin scarcely produced, rather more sclerotized than the sternite, which forms a short, wide, semi-membranous subgenital plate, apical margin parabolic, and with a triangular, membranous lobe projecting beyond its apex. Anal plates short, stout, apical margin rounded in lateral and dorsal views, its inner apical surface set with rows of black, comb-like spines. Aedeagus strongly sclerotized, large, forming a broad, up-curved plate. From above it tapers but slightly to a wide, truncate apex with rounded angles.

♀ GENITALIA. Eighth sternite produced apically in a broad, shallow, truncated triangle, angles rounded, sides slightly concave. Ninth tergite moderately sclerotized. Lateral gonapophyses flattened, broadly pyriform in side view. Anal plates about as long as gonapophyses, in side view with lower margin straight, upper convex, apex rounded. Trichobothria placed laterally.

Length of fore wing: ♂ 33 mm.; ♀ 37–44 mm.

The male genitalia are of the *sinensis* pattern but differ from the typical subspecies in the more rounded anal plates and the wider, truncate apex of the aedeagus.

Protochauliodes reedi sp. n.

Figs. 20, 21.

S. AMERICA: Chili (Reed), 5 ♂, 1 ♀ (Calvert), 1 ♂, 2 ♀. Holotype ♂ (Reed, with

abdomen mounted in canada balsam and left wings between celluloid), allotype ♀ (Calvert) and paratypes in Brit. Mus. (N.H.).

Body fuscous: labrum and clypeus fulvous, mandibles fulvous basally, reddish brown apically. A piceous area around the ocelli, a fulvous spot between the

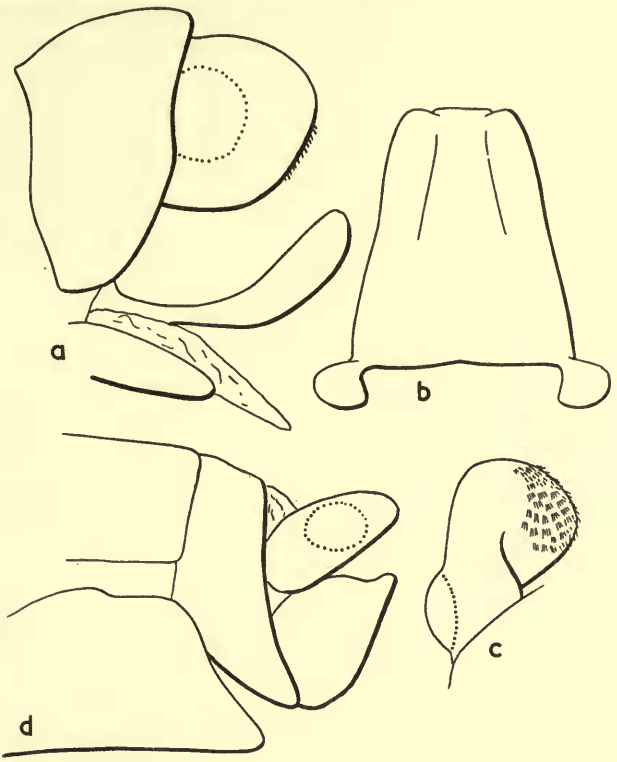

FIG. 19.—*Neochauliodes sinensis truncatus* ssp. n. Genitalia. *a–c*, male. *a*, lateral; *b*, aedeagus, dorsal; *c*, right anal plate, dorsal; *d*, female, lateral.

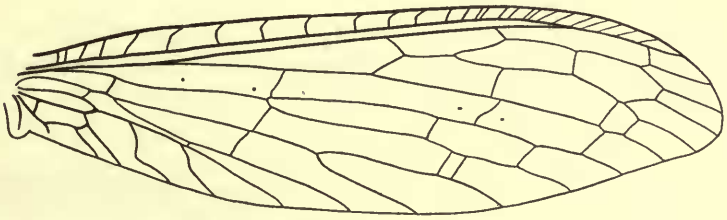

FIG. 20.—*Protochauliodes reedi* sp. n. Male, anterior wing.

antennae, and back of head marked with fulvous. Antennae dark castaneous basally, shading to fuscous apically. Thorax with obscure fulvous markings. Wings greyish hyaline, venation brownish. Fore wing with the veins heavily

bordered with brownish dots or short, divergent fasciae, especially along the radius and its sector and at the pterostigma. The centres of the cells are lightly clouded with a darker grey, but not usually reaching the marginal dots. The attachments of the wings fuscous, not orange. Venation much as in *P. cinerascens*, but in the fore wing most of the costal cross-veins are distinctly angled distad.

♂ GENITALIA. Ninth sternite triangularly produced at centre of apical margin, beyond rounded shoulders. Anal plates stout, slightly dilated apically and truncate

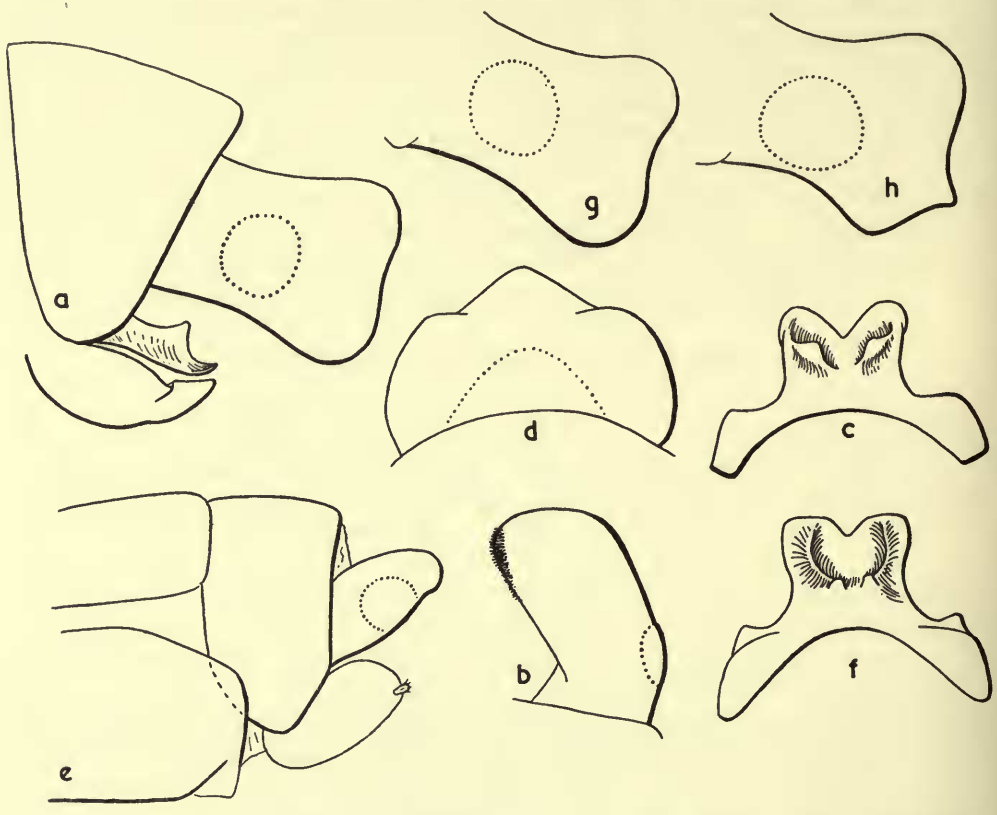

FIG. 21.—*Protochauliodes reedi* sp. n., *a–e* and *P. cinerascens* (Blanchard), *f–h*. Genitalia. *a*, male, lateral; *b*, male left anal plate, dorsal; *c*, aedeagus, dorsal; *d*, male ninth sternite, ventral; *e*, female, lateral; *f*, aedaegus, dorsal; *g*, male anal plate, lateral; *h*, male anal plate, lateral, from another example.

or slightly emarginate, with rounded angles in side view, curving inwards in dorsal aspect. Aedeagus with a broad, arched base, subquadrate in dorsal aspect, its apex with a triangular excision between two rounded lobes. There are two raised, divergent ridges or lobes on the upper surface about midway, curving backward and leaving a wide excision between them. From the side the apical lobes curve slightly upwards and the median ridges appear as triangular elevations.

♀ GENITALIA. Eighth sternite pigmented and sclerotized, a triangular area at

centre of apical margin semi-membranous. Ninth tergite deep, lateral gonapophyses stout, laterally compressed, extending beyond the tergite for about one-third of its length, basal two-thirds pigmented, apical third membranous and carrying a very small cercus. Anal plates finger-shaped, about as long as lateral gonapophyses, apices rounded.

Length of fore wing : ♂ 35–39 mm. ; ♀ 41–47 mm.

This species is closely allied to *P. cinerascens* (Blanchard) but differs from it in the pattern of the wings, angled costal cross-veins of fore wings, fuscous wing bases, the form of the aedeagus in the male and the rounded anal plates of the female. My interpretation of *P. cinerascens* is based upon the male in the British Museum (Nat. Hist.), described and figured by Weele in *Coll. Zool. Selys*, **5** (1) : 49–50, figs. 35–36, pl. 3, fig. 23. The form of the anal plates appears to be variable in *cinerascens*,

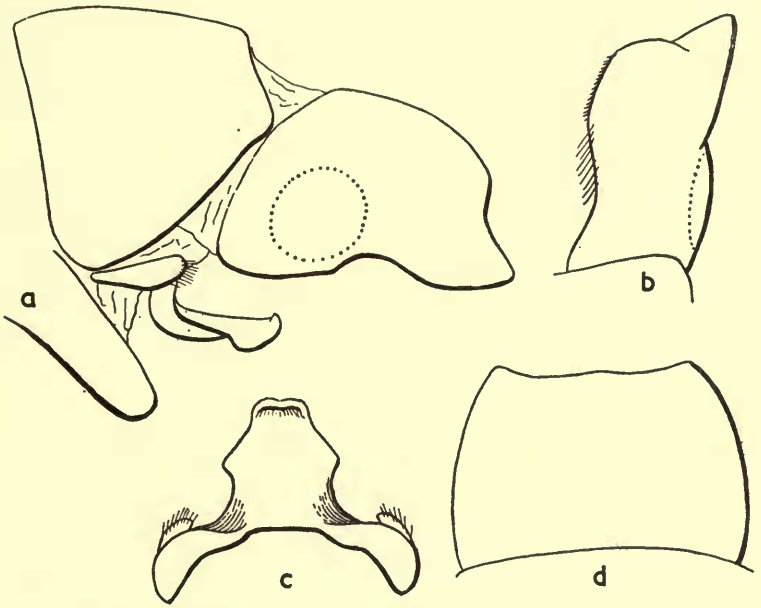

FIG. 22.—*Protochauliodes biconicus* sp. n. Male genitalia. *a*, lateral ; *b*, left anal plate, dorsal ; *c*, aedeagus, dorsal ; *d*, ninth sternite, ventral.

one example having the lower angle produced and with a small point. It is possibly a little more clavate apically but does not offer any good characters by which the dried insects may be separated. In *cinerascens* the aedeagus has its apex divided into two truncate lobes, separated by an acute excision, and the mid-dorsal lobes or ridges are much smaller.

Protochauliodes biconicus sp. n.

Fig. 22.

AUSTRALIA : New South Wales, Nowra, 8.x.1928 (F. A. Rodway), 1 ♂, holotype, in Brit. Mus. (N.H.).

The unique male is somewhat damaged, one antenna and part of the other missing, and the base of the right-hand wings defective. Body-colour dull reddish brown, head with paler markings on labrum, clypeus, between antennae and on vertex. Antennae subserrate, the anterior margin of each segment somewhat dilated, mainly fuscous. Pronotum anteriorly orange-fulvous. Legs fuscous. Wings with membrane pale brownish hyaline, fore wing with scattered brownish spots, darkest along costal border; hind wing with a few spots apically and along costal border. Venation brown, arrangement of veins much as in *P. cinerascens* (Blanchard).

♂ GENITALIA. Ninth tergite with apical margin widely and shallowly excised. Ninth sternite rather broad, lateral margins convex, apex truncate or slightly sinuous. Anal plates stout, from the side with upper margin convex, lower sinuous, lower apical angle produced, short and conical. From above this cone is directed backward and slightly outward. Inner margin sinuous, armed with dense, fine spinules and longer hairs. Aedeagus forming a subtriangular plate, lateral margins excised basally, apex very slightly bilobed. From the side the aedeagus is abruptly angled downwards near its base, then curved tailward to a moderately dilated apex with a small, acute projection on its upper surface.

Length of fore wing, 32 mm.

Type with abdomen mounted in balsam. This is, I believe, the first *Protochauliodes* to be recorded from Australia. Until the type locality of *Chauliodes dubitatus* Walker is known, one must not overlook the possibility that the present species may be the male of *dubitatus*. It differs however in its narrower wings, different pattern and the fact that in *dubitatus* the basal *r–m* cross-vein in the hind wing is completely absent. From *P. cinerascens* it may be separated by the differently shaped anal plates and by the form of the aedeagus.

APPENDIX

Since the galley-proofs of this paper were corrected, I have seen a copy of Mr. E. F. Riek's paper ("Australian Megaloptera, or Alder-flies," 1954, *Austral. Journ. Zool.* **2** (1): 131–142, 1 pl., 3 text-figs.). It seems probable that some of the new species described in the present paper will prove to be the same as species of *Archichauliodes* described by Riek, but in the absence of genitalia figures of his species it must be left for Australian entomologists to decide the matter. His *Austrochauliodes dubitatus* (Walker) may well be the same as my *Protochauliodes biconicus*, but his photograph of the female wings shows a definite basal *r–m* cross-vein in the hind wing, which is lacking in the type of *dubitatus* Walker.

D. E. KIMMINS,
6th Sept., 1954.